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LATIN AMERICAN FOREIGN EXCHANGE AND INTERNATIONAL BALANCES DURING THE WAR

SUMMARY

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I. THE EXCHANGE SITUATION

To the student of international trade the experiences of Latin America during the war offer interesting material for analysis. Especially interesting is the course of foreign exchange. Exchange has fluctuated with a violence that would be impossible in normal times; and the fluctuations have occurred in response to commercial and financial changes particularly significant for these "young countries," whose business of making a living consists chiefly in exchanging their raw produce for foreign manufactures, and whose capital is obtained almost entirely by foreign borrowings.

So abnormal did the exchange situation become in the later stages of the war that in some cases "credit-exchange" agreements were resorted to at the solicita-

tion of the United States and the Allies. In January, 1918, Argentina entered into a "Grain Convention" with Great Britain and France, whereby a credit of \$200,000,000 was granted to those nations to finance the purchase of 2,500,000 tons of Argentine wheat of the 1917-18 harvest. Shortly afterwards a similar credit fund was extended by Argentina to the United States, for \$40,000,000. In February, 1918 the Uruguayan congress sanctioned a credit of \$15,000,000 to Great Britain; and in July, one of \$20,000,000 to the United States.¹

These various "credit-exchange" conventions had as their main purpose the stabilization of exchange without resort to gold shipments. Their general character may be shown by a brief description of the arrangement between Argentina and the United States. By way of a beginning, we may recall the basic principle of the exchange mechanism as it operates in normal times: that, in response to the conditions of demand for and supply of bills of exchange (represented respectively by those who owe payments abroad, and those who receive payments from abroad), exchange fluctuates within the narrow limits of the "gold points," and cannot depart farther from par, for the reason that with the rate at specie point it becomes cheaper to make or receive payment (as the case may be) in gold, including cost of carriage overseas, than by bill of exchange. Gold thus flows out of or into the given country according as exchange is at the gold export point (unfavorable to importers and other debtors to the outside world) or at gold import point (unfavorable to exporters and other creditors of the outside world). Such, very baldly, is the mechanism in peace times. But the United States government was at war, and had placed an embargo on the

¹ A similar arrangement between the United States and Chile was under discussion last summer, but was not put into operation.

export of gold; so that the delicate mechanism of the gold points was upset. Thereafter, the fluctuations of the rate of exchange became much wider and more violent, being governed wholly by the conditions of supply of and demand for bills, without the possibility of gold movements to relieve the pressure on the rate. In the case of Argentina the rate had risen to a figure such that the peso was at a premium of about 13 per cent over the dollar; and this for the reason, as we shall see more fully later, that Argentina had a large balance of international payments due to her, and therefore an excessive supply of bills offered for sale in the Buenos Aires market. Further purchases of Argentine exports would increase that supply of bills, and drive the rate still higher. How relieve the pressure and force the rate back toward its normal level without resorting to gold shipments?

The following system was devised. The New York importer who bought goods in Argentina was permitted to settle by giving a check upon his New York bank to the Federal Reserve Bank, which sold him an order for pesos payable in Buenos Aires. The Argentine government, through the Banco de la Nación, lent to our government (i. e., to the Federal Reserve Bank) the required pesos, delivered in Buenos Aires, to pay the bill to the Argentine exporter. The Banco de la Nación agreed not to draw upon the Federal Reserve Bank during the period of the credit-exchange arrangement, but to content itself with allowing its credit to grow. This arrangement was to continue until the credit had grown to \$40,000,000 (later increased to \$100,000,000). Thus, the New York importer paid his debt (to the Federal Reserve Bank), the Argentine exporter received payment (in paper pesos issued to him by the Banco de la Nación); and no remittances, whether of gold or of

bills of exchange, took place between the two countries. But our government owed to the Argentine government a growing debt, to be paid off after the war, in gold or in goods; and to make that payment it had the sums received from our importers. In other words, for the duration of the agreement the whole process of paying for our Argentine imports ceased to be a foreign exchange transaction at all, or rather, as it has been commonly put, it became a "credit-exchange" transaction. Argentina exchanged that part of her exports which exceeded her imports for a credit, to be paid off at a future date. By this arrangement the excessive supply of exchange, represented by the exports, was withdrawn from the exchange market, which almost immediately fell markedly in the direction of the par rate.

Our present interest is not in the credit-exchange arrangements themselves, but in the abnormal situation which made them necessary. They have been described, very briefly, merely as a means of setting forth some aspects of that situation, and of the forces which underlay it. The purpose of this paper is to compare the course of foreign exchange in the four leading South American countries — Argentina, Brazil, Chile, and Uruguay — during the war; and to study some of the chief commercial and financial changes responsible therefor. The accompanying chart will serve as a starting point for the discussion.

The chart compares the course of exchange on 90-day sight sterling bills in the four countries named, for the period 1914–18. To render the fluctuations of the four curves comparable with each other, the actual quotations for each country, averaged for each month, are expressed in terms of their percentage deviations from the mint par of exchange between the gold currency unit of the country in question and British currency. In

Latin American countries sterling exchange is quoted in British pence, the par of exchange being 47.58*d.* per Argentine peso, 16*d.* per Brazilian milreis, and 51*d.* per Uruguayan peso. In the case of Chile, as will be described more fully later, the par of exchange, 18*d.*, is merely "nominal" since the law declaring the value of the peso to be 18*d.* is inoperative, the currency of the country being in fact depreciated inconvertible paper.

As an indication of the degree of abnormality of the exchange fluctuations, the "gold points," within whose limits the rates of exchange fluctuate in normal times, are drawn on either side of the par line. Since the margin between the par of exchange and the gold import and export points is not the same in any two countries, varying, among other factors, with the distance (and consequent freight costs) between the exchanging countries, ample margins have been allowed, + 2 per cent (premium) being taken as the gold import point, and - 2 per cent (discount) as the gold export point.¹

It is at once apparent that in all four countries exchange departed widely from the usual limits. The mechanism of gold points broke down completely. Even the Buenos Aires exchange, which shows the least violent dislocation, rose in December, 1918, to about 54*d.*, a premium of 13 per cent. Montevideo exchange rose as high as 65½*d.*, in May, 1918, a premium of 28 per cent. Brazilian exchange, on the other hand, depreciated, falling as low as 11½*d.* in October, 1914 (a discount of 31 per cent), and fluctuating since that date

¹ Throughout this paper the terms "premium" and "discount" have reference to the monetary units of the South American countries under discussion, and not to British currency. Exchange being quoted in British pence, a rise of the rate means that more pence must be offered for the peso, or the milreis as the case may be. In other words, a rise above par signifies a discount on sterling, and a premium on the peso. Contrariwise, a fall below par means a premium on sterling and a discount on the peso. The rise and fall of the Latin American sterling exchanges, therefore, are to be interpreted in just the contrary way from the rise and fall of sterling exchange in New York. Since the New York quotations are in United States currency, a rise signifies a discount on the dollar, and a fall a premium on the dollar.

between 12*d.* and 14*d.* ($12\frac{1}{2}$ per cent to 25 per cent discount). The Chilean exchange movement was unlike any of the others. It was by far the most striking. As in Argentina and Uruguay, the general trend was upward; but the upward sweep was of incomparably greater extent than in the case of either of those countries. On the other hand, notwithstanding the spectacular ascent of the rate, Chilean exchange at no point rose to the statutory par, but remained throughout a depreciated paper exchange. The Chilean situation, complicated as it is by the depreciated paper basis of the currency, must be left for later treatment.

Leaving out of account for the present, then, the complicating factor of depreciated paper currency in Chile, the outstanding facts shown by the chart are two:

1. The abnormality of the fluctuations of exchange in all countries, and
2. The striking difference, as regards the direction of the exchange movement, between Brazil on the one hand, where the rate has fallen markedly, and Argentina, Uruguay, and Chile on the other, where exchange has risen no less markedly. The explanation of this difference is the main purpose of this article.

The abnormality of the exchange fluctuations in itself requires no further comment. As we have seen, it was the inevitable consequence of the violent interruptions and alterations of commercial and financial international currents occasioned by the war, coupled with the reluctance of the countries at war to part with gold, and the consequent embargoes placed upon its export.

We shall proceed to the consideration of the second point, the comparison of the exchange movements in the several countries; and we shall discuss the changes in foreign trade and finance responsible for those move-

ments. Enough has been said, in the consideration of the Argentine credit-exchange arrangement, to indicate the general lines of the analysis. Since the rate of exchange fluctuates with the conditions of supply of and demand for bills, and since the supply and demand comprise all international transactions, the first originating in those transactions for which payment is due to the given country, and the second in those for which payment is demanded from the country by the outside world, our analysis of exchange movements resolves itself into a study of the balance of international payments in each country, an offsetting of "credits" against "debits." On the credit side of the balance are the exports, borrowings of foreign capital, interest receivable on capital invested in other lands, and other items for which payment is due to the country. On the debit side are the imports, interest owed on foreign capital invested in the country, immigrants' remittances, maritime freight charges, and other such items. Not all of the items are available for each country, but because of the striking character of the changes that occurred, it is possible to arrive, substantially, at definite conclusions regarding their effects. In addition to the balance of international payments, some attention must be given, briefly, to the monetary complications — so prevalent in South American countries — which affect the nature and course of the exchanges. We begin with Argentina.

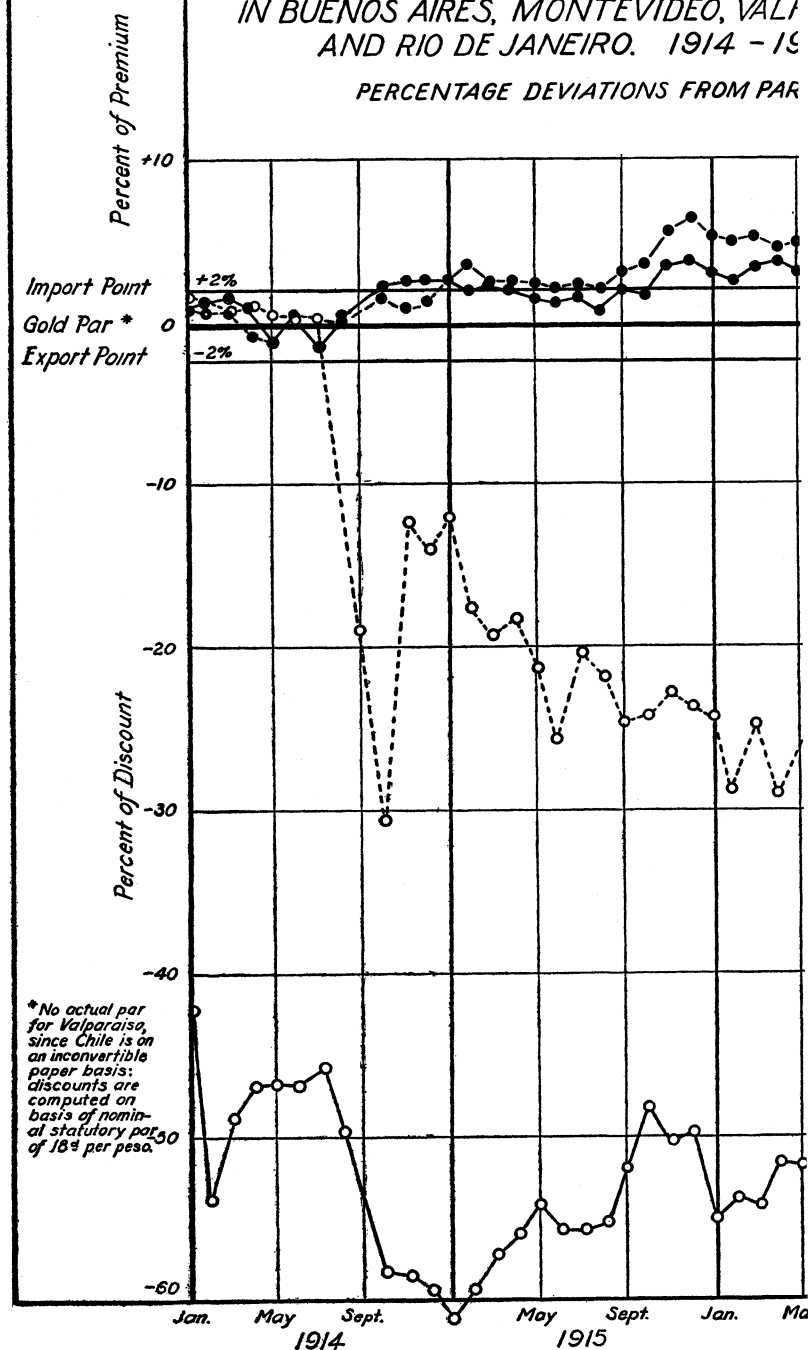
II. EXCHANGE AND THE BALANCE OF INTERNATIONAL PAYMENTS

1. *Argentina*

Buenos Aires exchange rests securely on a gold basis, the unit being the gold peso (= 47.58*d.*, or United States \$.965) created by the Monetary Law of 1881.

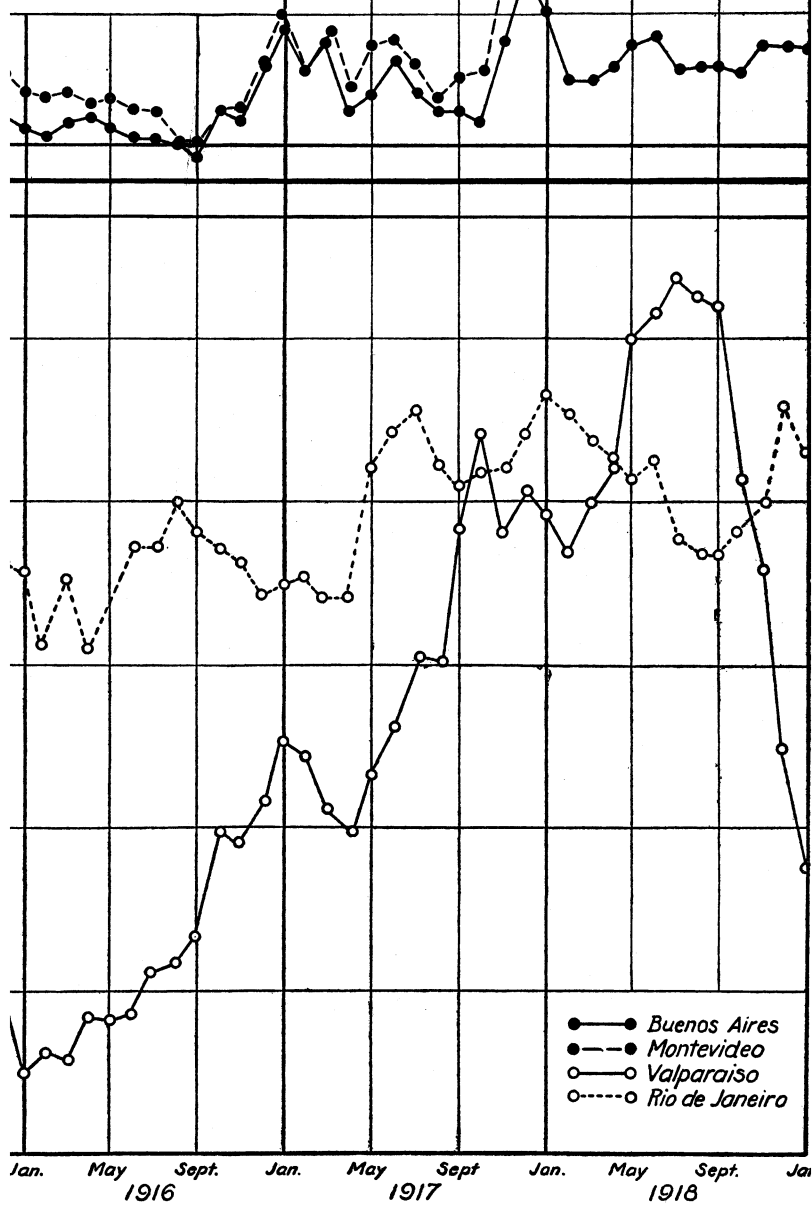
THE RATE OF EXCHANGE ON 90 DAYS SIGHT STERLING IN BUENOS AIRES, MONTEVIDEO, VALP AND RIO DE JANEIRO. 1914 - 15

PERCENTAGE DEVIATIONS FROM PAR



CHANGE
IN PRICING BILLS
FOR VALPARAISO,
1914 - 1918

FROM PAR.



For two decades after the passage of this statute, however, the real currency of the country was depreciated inconvertible paper, the premium on gold fluctuating violently. During the Baring Panic of 1890-91, which was precipitated by extravagant borrowing of foreign capital and a consequent land and railroad boom, coincident with lavish issues of paper under the National Bank system, the premium reached a height of 364 per cent,¹ a figure probably not paralleled in any important country in the nineteenth century.

By 1899, however, largely in consequence of a succession of favorable balances of international payments, and a consequent inflow of gold, the premium on gold had fallen to 127 per cent, so that the paper peso was worth \$.44 of the gold peso of 1881. By the Conversion Law of 1899 the value of the paper peso was definitely stabilized at the existing rate, \$.44 gold, by means of a conversion fund for the free exchange of paper into gold and gold into paper at that rate. Since 1899, therefore, the paper currency, the only currency in use in the country, has maintained a stable value, resting securely upon a gold basis. The Uruguayan is also a gold exchange, the peso having a par value of 51*d.*, or United States \$1.034.

Turning now to the war period, our chart (p. 426) indicates that until August, 1914 Argentine exchange fluctuated within the specie points, the extreme fluctuations being $47\frac{1}{16}$ (July) and $48\frac{3}{8}$ (March), 1.9 per cent below par and 1.6 per cent above par respectively. In August and September, 1914, the exchange market was virtually inoperative, Buenos Aires being quoted as "nominal." Thereafter the fluctuations became wider, but did not depart far from the gold import point until

¹ In October, 1891. See Martinez and Lewandowski, *La Republica Argentina en el Siglo xx*, p. 479.

the fall and winter of 1916-17 (Argentine spring and summer), when the exchange rose to 52 (January, 1917), a premium of over 9 per cent. In the following winter exchange rose to $53\frac{1}{2}$ (December, 1917), a premium of 13 per cent.

Up to this point, the Argentine and Uruguayan exchanges were markedly in sympathy with each other. This correspondence was to be expected, since the two countries form, in many respects, a homogeneous trade area, buying and selling the same commodities, and financing their international transactions through the same hands. After January, 1918, however, the correspondence was lacking. Montevideo exchange ascended to $64\frac{3}{4}d.$ (27.9 per cent above par), while the Buenos Aires exchange, after an initial fall to $50\frac{1}{2}d.$, remained fairly stable. This lack of correspondence of the two exchanges is ascribable mainly to the credit-exchange arrangements which have been described. It will be recalled that the Argentine conventions went into effect early in 1918, the Uruguayan agreements not being completed until summer.

Throughout the course of both of these exchanges there is noticeable an annual wave movement, reaching its crest in the winter months (South American summer) and its trough in the summer months. This wave movement is due chiefly to the alternation of active and inactive seasons in the export trade. From October to May, approximately, the harvest comes to port and is shipped; there is consequently a flood of bills of exchange offered for sale by the exporters, and the rate moves upward. From May to October, the exchange market is less active.

The most important feature of the exchange movement is the marked rise, appearing first in the winter of 1916-17, and becoming still more striking in the winter

of 1917-18. This rise is to be explained by reference to the changes occurring in the balance of international payments.

For the analysis of these changes we are fortunate in having the computations of Dr. Alejandro E. Bunge, Director General of National Statistics of Argentina, and those of Señor Carlos Alfredo Tornquist, one of the most eminent bankers and financiers of Argentina.¹ Dr. Bunge has computed the Argentine balance of payments for 1916, and Sr. Tornquist has computed the balance for each year since 1913.²

For the purpose of this study it will be sufficient to present the summary figures of Sr. Tornquist's balances for 1913-14 and 1916-17. Sr. Tornquist makes his computations for the Argentine "economic year," October 1 to September 30. In the following tables these balances are given in summary form. The first gives the balance for the year 1913-14, the second for the year 1916-17.³

¹ Sr. Tornquist possesses the best financial and commercial library in Buenos Aires. His father, the late Sr. Ernesto Tornquist, was the intimate adviser of Presidents Pellegrini and Roca during the period following the Baring Panic (1890-91), and, with finance minister Dr. J. M. Rosa, the author of the Conversion Law of 1899.

² These balances were presented to the writer during a visit to Buenos Aires in 1917-18, as travelling fellow from Harvard University.

³ The reader will note the absence of the item of freight charges from the Argentine balances. This omission is intended. Freight charges do not constitute an item in the international payments of Argentina, by reason of the method followed in recording the statistics of foreign trade. "Value of Imports" is compiled by the use of an official list of import prices ("tarifa de avaluos") which serve as standards for the computation of custom duties. When originally drawn up this list represented the actual prices of imported commodities and thus included freight charges on imports. From lack of regular and accurate revision of the list, however, the "tarifa de avaluos" has for years past conformed very imperfectly to actual import prices, and Dr. Bunge, Director General of Statistics, has initiated the practice of correcting the import statistics compiled from this list, by reference to the actual market prices. Concerning freight charges on exports Dr. Bunge says: "The prices taken (as the basis for compiling 'Value of Exports') are those of our (the Buenos Aires) market. Maritime freights, which do not come into the country because all the shipping which carries our products is foreign, are not paid by us; they do not occasion either a credit or a debit of our country toward the outside world, and ought not to figure as an item of our foreign commerce." *El Intercambio Economico de la Republica Argentina en 1916*, p. 13.

THE ARGENTINE BALANCE OF PAYMENTS, 1913-14

(Thousand gold pesos (peso = \$.965))

CREDIT

1. Exports	404,250	
2. Capital invested ¹	114,000	
Total	<hr/>	518,250

DEBIT

1. Imports	392,100	
2. Debt Services	177,300	
Total	<hr/>	569,400

BALANCE	-51,150	
Reduction of Gold Stock in Country	+32,600	
NET BALANCE	<hr/>	-18,550

THE ARGENTINE BALANCE OF PAYMENTS, 1916-17

(Thousand gold pesos (peso = \$.965))

CREDIT

1. Exports	599,300	
2. Capital invested	30,300	
Total	<hr/>	629,600

DEBIT

1. Imports	357,500	
2. Debt Services ²	201,500	
3. Immigrant's Remittances	10,000	
4. Tourist's Expenditures	3,000	
5. Subscriptions to War Loans	8,500	
Total	<hr/>	580,500

BALANCE	+49,100	
Increase in Gold Stock of Country	-33,143	
NET BALANCE	<hr/>	+15,957

¹ The separate items under "Capital Invested" are:

1. Two loans contracted by the national government, and one by the federal capital	\$46,200,000
2. Securities issued in Europe by railroad and other companies in Argentina	34,300,000
3. Bonds sold in Europe (cedulas, paving bonds, etc.)	23,500,000
4. Interest relouped by mortgage companies	5,000,000
5. Private mortgages and other investments	5,000,000
Total	<hr/> \$114,000,000

² The separate items under "Debt Services" are:

1. Service of the public debt	\$49,800,000
2. Service of foreign mortgage investments in Argentina	16,800,000
3. Service of cedulas	9,900,000
4. Service of railway capital	40,000,000
5. Service of other foreign capital	32,000,000
6. Repayment of short-time public loans	53,000,000
Total	<hr/> \$201,500,000

These tables indicate a reversal of the Argentine international situation between the last year prior to the war and the year ending September 30, 1917. If we leave out of account, for the moment, the item relating to changes in the gold stock of the country, we find in 1913-14 that the balance was unfavorable to Argentina by \$51,150,000. It is well known that the year 1913-14 witnessed a "near-panic" in Argentina; the unfavorable balance of payments, the consequent downward pressure on exchange, and the large outflow of gold were important factors in that situation. Turning to 1916-17 we find a different situation. The balance of payments is favorable, the excess of the credit account over the debit account amounting to \$49,000,000.

But both of these figures were reduced by international gold movements; and since the interruption of gold movements forms an important part in the explanation of the abnormal state of the Latin American exchanges, the figures of the balance sheets relating to this item deserve separate attention. By virtue of the normal exchange mechanism, already reviewed, an excess of debits over credits drives exchange to a discount and induces an outflow of gold; and, contrariwise, an excess of credits over debits drives exchange to a premium and induces an inflow of gold. Gold movements, therefore, constitute the *balancing item*, so to speak, of international payments, by means of which credits and debits, and consequently the rate of exchange, tend toward a state of equilibrium. In view of this fact one would expect from the terms of the balance of 1913-14 to find a considerable outflow of gold. Such an outflow did occur, the net reduction of the gold stock of the country in that year being \$32,600,000. Subtracting this sum from the unfavorable balance of \$51,600,000, we obtain a net uncovered balance of \$18,550,000 "against" Argentina.

In the same way, in 1916-17, one would expect, normally, a considerable inflow of gold; and such an inflow did occur, the net addition to the country's stock of gold in that year being \$33,143,000. Subtracting this amount from the favorable balance of \$49,100,000, we have a net uncovered balance of \$15,957,000 "in favor of" Argentina. But in 1916-17 such a net inflow of gold appears at first glance surprising, since, as has been said, the nations at war had placed an embargo on the export of gold. The details of the gold movement in 1916-17 are therefore essential to an adequate understanding of the Argentine situation. Sr. Tornquist has given the figures of the gold movement by quarters; the net import in each quarter being as follows:

(000's omitted)

Last quarter of 1916.....	\$6,772
First quarter of 1917.....	24,021
Second quarter of 1917.....	2,301
Third quarter of 1917.....	49

It is seen that virtually all of the gold entered the country in the first two periods. The falling-off in the second quarter of 1917 is striking; and in the third quarter the gold movement is negligible. The heavy imports up to April, 1917, came from New York. They came in consequence of a balance of payments becoming increasingly favorable to Argentina. They served, in part and for the time, to meet that balance, and thus prevented the rate of exchange from rising so high as it would otherwise have risen. When the United States entered the war, the flow of gold from New York dwindled (as it had already done from the other countries at war), and soon ceased. The effect is seen in the next Argentine export season, the fall and winter of 1917, when the rate of exchange went much higher than in the preceding year, and made necessary the credit-exchange arrangements.

Further examination of the tables that have been given for 1913-14 and 1916-17 indicates in what manner the reversal of the balance of payments occurred. In the war period the flow of capital to Argentina, which in 1913-14 amounted to \$114,000,000, was virtually cut off. Interest charges and other financial payments meantime increased, mainly through the paying off in 1916-17 of \$53,000,000 of short-time public loans. These changes increased the net outgoings on all items of the balance except the foreign merchandise trade by \$129,400,000. This increase on the debit side of the balance, however, was much more than offset by the striking change in the balance of merchandise trade. Exports increased \$195,050,000; and at the same time imports decreased \$34,600,000; with the result that the merchandise balance in 1916-17 was favorable by \$241,800,000, a sum so large as to offset the net debit of \$129,400,000 incurred on all other items, and leave a surplus of \$49,100,000. Even after allowing for the "balancing item" of a net import of gold of \$33,143,000, we find a net uncovered balance in favor of Argentina of \$15,957,000 on all international transactions.

This striking alteration of the balance of merchandise trade is characteristic of all the Latin American countries. In all of them imports have been restricted, mainly by reason of the scarcity of shipping, the need for redistributing tonnage with a view to war requirements, and the desire on the part of the nations at war to conserve both tonnage and goods. In Argentina, Uruguay, and Chile, the shrinkage in imports has been accompanied by an extraordinary expansion of exports, in response to the war-stimulated demand of Europe and the United States for food stuffs and materials of war. It is this change in the merchandise balance which is mainly responsible, given foreign embargoes on gold, for the striking variation of foreign exchange.

Since the Argentine balances of payments have been presented with greater fullness and precision than is possible for the other countries, the simple presentation of the balances will suffice as an explanation of the rise of Buenos Aires exchange. There is not space for a detailed consideration of the merchandise trade by itself. The most important change therein, the great increase in value of exports, was due to the nature of the exports, of which meat, wool, and cereals are the chief. It is interesting to note, however, that the growth in value of exports was not wholly, or even chiefly, due to an increase in quantity exported. In 1917, the year we have studied, there was in fact a striking decrease in quantity, in the case of some of the chief exports. The following figures show the exports of meat and cereals from Argentina and Uruguay combined, for the period 1914-17.

EXPORTS OF MEAT AND CEREALS FROM ARGENTINA AND URUGUAY,
1914-17¹
(1000 tons)

	1914	1915	1916	1917
1. Meat:				
Carcasses of frozen sheep and lambs	2,845	2,246	2,165	1,609
Quarters of frozen beef	1,963	4,457	5,718	5,335
Quarters of chilled beef	3,398	1,309	933	670
2. Cereals:				
Wheat	958	2,449	2,245	898
Maize	3,512	4,331	2,827	896
Linseed	862	995	639	140
Oats	360	501	785	271
Barley	21	76	53	11

It will be seen that in these two, the most important branches of Argentine trade, quantity exports after a

¹ Data from the Argentine official *Anuarios del Comercio y de la Navegacion*, and *Business Conditions in the Argentine*, No. 40, Ernesto Tornquist and Co., Ltd., pp. 14-15.

rise in 1915 barely held their own in 1916, and in 1917 descended very considerably below the figures of 1914. The decrease of meat exports is ascribable to the increasing scarcity of shipping. The shrinkage of cereal exports, which is especially marked in every item, was due partly to shipping scarcity, but mainly to the drought and frost which in many districts ruined the 1916-17 harvest. It will be recalled that President Irigoyen placed an embargo on wheat for a time, and only consented to release wheat to Great Britain on condition that each shipment be replaced by an equal quantity of Australian wheat.

The increase of the value of exports, then, was mainly due to an extraordinary rise in export prices. Wheat selling at about \$10 per 100 kilos in July, 1914 sold for \$19 in June, 1917; corn rose in the same period from \$5.75 to \$13.50; linseed from \$14.60 to \$25. Wool selling at \$7-\$12 (paper) per 10 kilos, according to grade, in July, 1914, sold at \$8-\$18 in March, 1917, and at \$20-\$32 in January, 1918.¹ Similar increases, of from fifty to several hundred per cent, occurred in the other exported products; with the result that, notwithstanding considerable diminution in the quantities exported, the total value of exports showed marked expansion from the pre-war figures.

The Argentine situation, therefore, is sufficiently clear. The abnormal rise of foreign exchange was due mainly to the large favorable increase of the balance of merchandise trade. Let us compare with this situation that of Chile and of Brazil. In the case of these countries, since data concerning the "invisible" items of the balance of payments are meager and of uncertain reliability, we must treat mainly of the merchandise trade.

¹ Boletines de la Bolsa.

2. *Chile*

The following figures show the Chilean balance of merchandise trade from 1910 to 1917:¹

CHILEAN BALANCE OF MERCHANDISE TRADE, 1910-17²

(Thousand gold pesos (peso = 18*d.*, or U. S. \$.365.))

Year	Exports	Imports	Balance
1910	\$328,827	\$297,486	\$+31,341
1911	339,409	348,990	-9,581
1912	383,228	334,455	+48,773
1913	396,310	329,518	+66,792
1914	299,675	269,757	+29,918
1915	299,591	153,212	+146,918
1916	505,963	222,521	+283,442
1917	703,544	355,077	+348,467

One's attention is arrested by the extraordinary growth of the balance in favor of Chile since 1914. The surplus increased from about 30 million pesos in 1914 to about 147 millions in 1915 (a fivefold increase), 283 millions in 1916 (a tenfold increase), and 348 millions in 1917 (a favorable surplus almost twelve times as large as that of 1914). On the other hand it should be noticed that the balance of 1914 was below the average for pre-war years. The explanation of these changes in the balance is to be found in the first two columns of figures, which indicate the different effect of the war on Chilean trade at the beginning of the war and in later years. In 1914 there was a shrinkage both of exports and of imports, that in exports being particularly marked. In 1915 exports held their own but showed no increase, whereas imports decreased some 33 per cent from the 1914 figures. In 1916, the outstanding fact was the

¹ Anuario Estadístico, 1918, pp. 287-289.

² Some of the data and some portions of the text of the sections of this article devoted to Chile and Brazil are from a series of papers on Latin American trade balances and foreign exchange prepared by the writer for the Bureau of Foreign and Domestic Commerce, and distributed in typewritten form as "Latin American Circulars," in July and August, 1918.

enormous increase of exports, which gained almost 70 per cent in a single year, and set a new high-water mark in Chilean trade. In 1917 there was another large increase in exports. Imports also showed some gain, tho to a much less degree than did exports.¹ Broadly speaking, the figures indicate that the large favorable trade balance was due to the remarkable expansion of exports and to the shrinkage of imports.

The expansion of exports is ascribable chiefly to the growth of the nitrate trade to meet the war demand for explosives. Prior to the war about three-fourths of the exports of nitrate was for fertilizers, and about one-fourth for explosives. Under war conditions these proportions were reversed, only some 20 per cent of the exports being used for fertilizers and the rest for explosives and general chemical uses. The effect of the war upon exports of nitrate, and the importance of this product in the total trade of Chile is shown in the following table:

¹ In a study of the relation between the movements of foreign exchange and the balance of international payments, there should, in strictness, be included in the balance only those items which give rise to exchange operations. In much of the discussion of international balances this principle is overlooked. Merchandise trade figures, for example, are usually included in the balance in their entirety, as a matter of course. Yet it is by no means certain that all exports and all imports give rise to exchange transactions, or play any direct part in that chain of phenomena (exchange movements — gold movements — price changes — trade changes) so familiar to the reader of Mill or Cairnes. Without going into any detail, we may point out an important instance in the case of Chilean imports. In 1917 the exports of Chile to the United States were \$142,000,000; the imports were \$57,000,000, or about one-sixth of the total Chilean imports. These are the United States Department of Commerce figures. More than half of the so-called "imports" of \$57,000,000, however, was represented by shipments of construction material and supplies to the Braden Copper Co., the Chile Copper Co., the American Smelting and Refining Co., the Bethlehem Steel Co., and the Du Ponts. All of these companies are American. The supplies sent to them were paid for in New York, and did not, therefore, have any effect whatever on the exchange situation in Chile. For unlike true imports they did not "make" Chilean exchange. Analysis of the Chilean imports, then, shows that the surplus of exports over imports (and the consequent upward pressure upon the exchange rate) was even greater than that shown by the official trade statistics. See Hearings before the Committee on Banking and Currency, United States Senate, Sixty-fifth Congress, Second Session, on S. 3928, statement by Mr. Leopold Frederick (treasurer of the first three companies named above, and formerly manager of the foreign exchange department of the National Bank of Commerce in New York).

EXPORTS OF NITRATE FROM CHILE, 1910-17¹
(000's omitted)

Year	Quantity (tons)	Value in gold pesos of 18d.	Per cent of total exports
1910	2,336	232,426	71
1911	2,449	262,003	77
1912	2,493	286,704	75
1913	2,738	314,909	80
1914	1,847	212,380	70
1915	2,023	232,679	78
1916	2,967	338,529	67
1917	2,798	475,819	68

As regards the quantity exported, the notable facts are the marked shrinkage in 1914 and the even more remarkable expansion in 1916 and 1917. At the beginning of the war, in view of the anticipated decline in the demand for nitrate for fertilizing purposes, many of the oficinas of nitrate-producing companies in Chile were closed, and by the end of 1914 out of a total of 170 only 43 were producing. By March, 1915 the number had fallen to 36.

Since the nitrate industry, as has been shown, represents some three-fourths of the total export trade of the country, and since, moreover, the government derives over 50 per cent of its revenues from the export duty on nitrates, the temporary cutting-off of the foreign market for this product represented a veritable calamity for Chile. The government took immediate steps to induce the producers to keep up operations. The President was authorized to make advances to producers of nitrate of three pesos for each quintal mined, and four pesos for each quintal ready for shipment, provided the producers should agree to keep up production. Authority was given to emit treasury bills, both for the purpose of granting assistance to the nitrate industry,

¹ Extracto Estadístico de la Republica de Chile, 1917, p. 139, and Anuario Estadístico, 1918, p. 185.

as above indicated, and also in order to make rediscounts for banks. These rediscounts paid an interest of 3 per cent less than the current rate charged by the banks, and were secured by mortgage bonds. About 21,000,000 pesos of these treasury bills were issued up to December 31, 1914 to nitrate producers, and 9,000,000 pesos to banks.

As a result of these measures, combined with the growing demand of the Allies for nitrate for explosive purposes, the corner was turned after March, 1915, and the number of oficinas in operation began to grow rapidly. At the beginning of 1916 we find 116 at work, out of a total of 172. In January, 1917, 118 were producing, and by September the total had increased to 124. Production therefore showed a substantial recovery:

(Thousand quintals¹)

	1914	1915	1916	1917
Production.....	53,500	38,200	63,300	65,100
Exports.....	40,000	44,000	65,000	60,800

Attention is called to the changing ratio between production and export. In 1914, only four-fifths of the amount produced was exported. In 1915 and 1916 the exports exceeded the amount produced within those years. In other words, at the outset of the war nitrate was not moved off as fast as it was produced. This was also the situation in 1917, owing to a scarcity of shipping. The result is seen in the course of nitrate prices in Chile. Tho nitrate prices abroad rose markedly, the price in Chile, in consequence of the surplus stock awaiting shipment, failed to respond in anything like the same degree.

It will be noted that down through 1916 the war demand for nitrate, in view of the circumstances cited

¹ Pan American Union, Bulletin of April, 1918, p. 537.

AVERAGE YEARLY PRICE OF NITRATE PER SPANISH QUINTAL,¹
1910-16²

Years	Shillings
1910.....	6s. 11 $\frac{3}{4}$ d.
1911.....	7s. 0 $\frac{3}{4}$ d.
1912.....	8s.
1913.....	7s. 10d.
1914.....	6s. 11 $\frac{1}{2}$ d.
1915.....	7s. 4 $\frac{1}{4}$ d.
1916.....	7s. 8d.
1917.....	9s. to 11s.

above, had virtually no effect on nitrate prices in Chile. In fact, the 1913 price was higher than that of any of the three following years. In the production year 1916-17 (July to June), however, nitrate rose to 9 shillings the quintal. In the last half of 1917, particularly from August on, speculation ran the price up from about 10 shillings to 16 shillings the quintal. It does not appear that there was any sound basis for this rise, and the purchase by the United States government of 200,000 tons of German nitrate which had been lying idle in Chile, served to bring down selling prices to some extent. From the fall of 1917 for the remainder of the war, virtually all of the selling was to the British and United States governments at an officially controlled price. In the summer of 1918 the British government contracted for the purchase of 15,000,000 quintals (about 1,500,000 tons) at the price of 13s. for ordinary nitrate and 13s. 6d. for refined nitrate. Our chart, p. 426, shows that exchange reached its highest point (about 17d., a rise of about 120 per cent above the rate ruling in 1914) while this contract was being made, and indicates strikingly the sympathy between the nitrate market and the exchange market.

¹ Quintal = 101.41 lbs.

² *Extracto Estadístico*, 1917, p. 119; and *South American Journal*, January 5, 1918, and April 6, 1918.

The other important Chilean export is copper. This, too, experienced a remarkable growth under war conditions. The following table shows the exports of copper from 1910 to 1917:

EXPORTS OF COPPER FROM CHILE, 1910-17 ¹

Year	Quantity (tons)	Value (pesos of 18d.)
1910.....	37,804	26,630,704
1911.....	34,587	20,501,183
1912.....	40,897	33,550,041
1913.....	41,323	30,894,566
1914.....	45,227	31,891,726
1915.....	53,587	45,409,745
1916.....	71,904	86,639,941
1917.....	78,183	104,413

Nitrate and copper represent the great bulk of Chilean exports. Other exports, such as cereals, wool, hides and skins, iodine, etc., are too small to exercise any influence on the major changes of the balance of trade. The shrinkage of imports, then, occasioned by the need of conserving tonnage, and the extraordinary expansion of the exports of nitrate and copper sufficiently explain the large and growing favorable balance of trade.

Such was the merchandise trade situation. As regards the "invisible" items of the balance of payments the data are meager and of uncertain worth. For the most important of these items, however, the payments of interest on foreign capital, there are fairly reliable figures. The following is a summary of the interest payments made in 1916: ²

¹ Extracto Estadístico, 1917, p. 140, and Anuario Estadístico, 1918, p. 184.

² Compiled from Extracto Estadístico, 1917, pp. 63-78; and F. M. Halsey, Investments in Latin America and the British West Indies, No. 169 of Special Agents Series, Bureau of Foreign and Domestic Commerce.

INTEREST ON FOREIGN CAPITAL IN CHILE, 1916

(Thousand gold pesos (peso = 18*d.*, or U. S. \$.365))

1. Interest and amortization on government foreign debt (429,620,600 pesos, Dec. 31, 1916).....	29,973
2. Interest and amortization on railroad guarantees.....	10,866
3. Interest computed at 6 per cent on mortgage bonds of the Banco Hipotecario de Chile held abroad (total issue 112,000,000 pesos; part held abroad 67,803,000 pesos)...	4,068
4. Interest computed at 5 per cent on all other private in- vestment (1,463,472,000 pesos).....	73,174
	<hr/>
Total interest charge.....	118,081

Below is drawn up a rough balance of payments for 1916, showing the exports set off against the imports plus the interest payments:

	Thousand gold pesos of 18 <i>d.</i>
Exports.....	505,963
Imports plus interest payments.....	340,615
	<hr/>
Balance.....	+165,348

It is seen that exports alone exceeded imports and interest payments combined by over 165 million pesos. If there was any investment of private capital from abroad in 1916 (and some there was certainly, as is proved, for instance, by the sale of nitrate lands at auction by the government) the surplus in favor of Chile would be increased thereby.

There can be no doubt of the fact, then, that considering the total incomings and outgoings of Chile during the war, the balance was favorable to Chile by a wide margin. The effect of this large favorable surplus upon the rate of exchange was extraordinary. Comparing the rate at the outbreak of war, 7-8*d.*, with the rate ruling in the summer of 1918, 16-17*d.*, we find a rise of about 120 per cent, by far the most extraordinary alteration of exchange in any Latin American country.

This spectacular movement of the Chilean exchange was not due merely to the alteration of the balance of

payments. The changes in the Argentine balance were in the same direction, and scarcely less marked. Yet the movement of Buenos Aires exchange, as shown by our chart, appears insignificant as compared with that of Valparaiso exchange. The maximum rise of Buenos Aires exchange was but 13 per cent. As has been intimated in an earlier place, the reason for this marked difference in the movements of these two exchanges is to be found in the different character of their monetary bases. The Buenos Aires exchange is a gold exchange; that of Chile is a paper exchange. The currency of Chile is depreciated inconvertible paper. There is no specie in circulation, and no specie basis for foreign exchange transactions.

In a comparative summary of South American exchange conditions it is impossible to consider adequately the peculiarities of the paper exchange mechanism, or the forces which govern its operation. In Chile foreign exchange is bought with and sold for paper pesos. The value of the peso, and hence the rate of exchange of bills, depends on a number of highly unstable factors — on the quantity of paper in circulation relative to the domestic demand for money, on rumors as to the probability of the conversion of paper money into specie at some fixed date, on the degree of confidence reposed in the government, and hence on political changes, political gossip or scandal, a controversy in Congress, a political attack in the press. In a country like Chile, whose economic life (and public revenues) depend so largely upon foreign trade and foreign capital, the best single measure of the value of the paper peso is the rate of foreign exchange, which indicates what the peso is worth in terms of foreign gold moneys.¹ Anything which

¹ In other words, the rate of foreign exchange of a depreciated paper currency is substantially identical in meaning with a statement of the value of the depreciated currency in terms of a premium on gold.

affects, or is likely to affect, the conditions of supply of and demand for bills of exchange, will exercise a powerful influence on the (gold) value of the currency, or in other words, on the rate of foreign exchange. If a strike is threatened in the nitrate fields, down goes exchange, for there is danger that the supply of exchange will be reduced by reason of a reduction of exports of nitrate. If there is a rumor that the Chilean government intends to buy submarines in the United States, down goes the exchange again, for the purchase will increase the demand for bills of exchange, and thus drive down the rate.¹

This condition of unstable currency goes back into the nineteenth century. The present system began with the law of July 31, 1898, which authorized the emission of 50,000,000 paper pesos. At the same time all bank notes previously issued were taken over by the government. Since 1898 the quantity of paper in circulation has been increased to 159,840,119 pesos (December 31, 1916), of which 150,000,000 have been emitted under the act of 1898.² The law of 1898 provided for a conversion fund, by means of which the conversion of the paper money into gold at the rate of 18*d.* per paper peso was to begin January 1, 1902. Conversion was postponed, however, until 1905; and before that date was reached a further postponement to 1910 was announced, and then to 1915. Meantime, the gold value of the paper peso, as indicated by the rate of foreign exchange, after maintaining a relatively high level through 1904 (about 16.5*d.*), declined gradually, and for the period 1908–13 ranged between 9.6*d.* (the average for 1908) to 10.8*d.* (the average for 1910). On the outbreak of war, exchange fell still lower, reaching 7 $\frac{1}{32}$ *d.* in January, 1915,

¹ Sterling exchange in Valparaiso, it will be remembered, as well as everywhere else in South America, is expressed in terms of British pence.

² *Extracto Estadístico*, p. 65.

a depreciation of 61 per cent from the statutory par. Conversion was again postponed to January 1, 1917, and then to January 1, 1919. In the summer of 1918, with exchange at 16–17*d.*, there appeared to be a strong prospect that specie payments would this time be attempted, at the par rate of 18*d.* named in the law of 1898. This prospect was strengthened by the considerable inflow of gold in 1917. Notwithstanding the reluctance of the nations at war to part with gold, Chile secured their consent to considerable shipments of specie, especially from the United States, as a condition of the sale of nitrate.¹ The following figures show the specie movement for the years 1914–17.

CHILEAN IMPORTS AND EXPORTS OF SPECIE, 1914–17 ²
(Gold pesos of 18*d.*)

Year	Export	Import
1914.....	15,671	3,686,884
1915.....	40,357	1,035,724
1916.....	34,958	30,543
1917.....	522,507	16,446,805

In addition to these gold imports the Chilean government had collected (prior to the war) a gold fund with which to undertake the conversion of the 160 millions of paper pesos in circulation. At the end of 1916 this fund amounted to 87,759,702 pesos (gold), and was deposited in banks of foreign countries, as follows:

¹ Most of the gold imports of 1917 were in connection with the purchase by the United States government in the fall of 1917 of 200,000 tons of nitrate which had belonged to German firms (see above, p. 442). This sale had a double purpose. The United States wanted nitrate; Chile wanted to secure the portion of the Conversion Fund (see text) which was in Germany — about \$10,000,000 — and have it transferred to Chile. A three-cornered arrangement was therefore made. The United States bought the 200,000 tons of German nitrate; the United States instructed the Federal Reserve Board to allow the shipment of the equivalent in gold to Chile; the German government arranged the payment in Germany to the former owners of the nitrate (probably in government bonds).

² Extracto Estadístico, 1917, p. 64; and Pan American Union, Bulletin of April, 1918, p. 537.

	(Gold pesos of 18d.)
In England	48,765,770
In Germany	22,225,687
In United States	3,124,605
	<hr/>
	87,759,702

By March, 1918, the conversion fund had grown to 94,000,000 pesos (gold).¹

But since the signing of the armistice, there has been a complete reversal of the Chilean exchange situation. The chart at p. 426, shows the fall of Valparaiso exchange in the closing months of 1918. From $16\frac{5}{8}d.$, the rate for September, we have a fall to $9\frac{3}{4}d.$ by December 24. In other words, in a space of three months, the rate of exchange returned approximately to the pre-war level. Nothing could indicate more strikingly the fact that the rise of Chilean exchange was purely a phenomenon of war, the consequence of the abnormal demand for nitrate. With the armistice the large purchases of nitrate ceased. The correspondent of the *South American Journal*, writing in January, 1919, stated that "there have been practically no sales at all since October," tho the stocks in Chile were very large; and he estimated that the quantity still in the hands of the British government for sale amounted to 600,000 tons. The price had fallen to about 9s. per quintal, and the oficinas had cut down to about half their normal production.²

3. Brazil

The experiences of Brazil during the war present a rather striking paradox. Apparently she was the hardest hit and at the same time perhaps the most benefited, in a material sense, of all the Latin American

¹ The Economist (London), January 18, 1919, p. 70.

² South American Journal, January 11, 1919, p. 77.

countries. The effect of the war upon Brazilian finance, upon the currency, the course of foreign exchange, the foreign trade, has been distinctly less favorable than in the case of the other leading countries.

On the other hand, the serious dislocation of trade occasioned in virtually all Latin American countries by the war has in the case of Brazil brought about industrial and commercial changes which appear to mark the beginning of a new period in its economic life. Much attention has been devoted to cattle raising in southern Brazil.¹ Great packing plants, financed chiefly with American capital, have been built. There has also been a marked increase in the production of cotton and of cane sugar, for which the soil of Brazil, in the long coastal belt stretching from São Paulo to the Amazon, is preëminently fitted. By an arrangement with the Japanese government several thousand Japanese colonists have been brought to Brazil to teach the Brazilians how to grow rice that is cheap and of good quality. Equally significant is the development of Brazilian minerals, of which the state of Minas Geraes, just north of Rio de Janeiro, has a rich and varied supply. The iron deposits, among the largest in the world, had lain dormant before the war; but under the stimulus of war and the difficulty of importing metal products, smelting operations and the manufacture of high grade steel products have been undertaken. The mineral which the war has done most to develop in Brazil is manganese. The chief sources of supply prior to the war were Burma and Russia. The Russian supply was cut off during the war; that of Burma has about doubled since 1913. Brazil, meantime, has come forward as the principal source of manganese.

¹ According to the latest official figures Brazil has 30,000,000 head of cattle, about the same number as Argentina, but of poorer quality.

It is impossible in a paper like the present to describe the other changes that have occurred in Brazil, the rapidly growing exportation of lumber, the new developments in dye stuffs and pharmaceutical products, the really remarkable expansion in the manufacture of textiles¹ and shoes.² These latter industries were fairly well established, thanks to very high tariff protection, before the war. Whether they, and the other industries mentioned, will continue to develop without the stimulus of high prices, and under normal conditions of trade, remains to be seen.³ Our purpose in the present paper is to consider the darker side of the Brazilian war-time condition, and to summarize the chief factors bearing upon the foreign exchange movement.

The striking fact is the marked fall of exchange, as contrasted with the rise in all the other countries studied. Up to July, 1914, exchange fluctuated closely

¹ In 1917 Brazil exported cotton textiles to France. More than half of the home needs in cotton textiles are supplied by Brazilian manufacture.

² The output of footwear is now about 20,000,000 pairs a year, over half being produced in the state of São Paulo.

³

SOME NEW BRAZILIAN EXPORTS

Date	Quantity (tons)	Value (£1,000)	Date	Quantity (tons)	Value (£1,000).
<i>Refrigerated Meat</i>			<i>Sugar</i>		
1913	0	0	1913	5,367	65
1914	0	0	1914	31,860	373
1915	8,514	310	1915	59,074	756
1916	33,661	1,414	1916	53,824	1,286
1917	66,452	3,134	1917	131,509	3,624
<i>Kidney Beans</i>			<i>Rice</i>		
1913	4	0	1913	49	2
1914	4	0	1914	3	0
1915	276	5	1915	3	0
1916	45,594	686	1916	1,124	24
1917	93,428	2,150	1917	42,590	1,262
<i>Manganese</i>					
1913	122,300	181			
1914	183,630	278			
1915	288,671	536			
1916	503,130	1,478			
1917	532,855	3,062			

about par, 16*d.* per milreis. Our chart shows what occurred thereafter. With the outbreak of war the rate broke so sharply as to compel the closing of the exchange. A bank holiday of fifteen days was declared. In October exchange was quoted at the very low figure of 11½*d.* In other words, the value of the Brazilian milreis had depreciated about 31 per cent from the rate ruling in July. In November there was a partial recovery, to 14*d.* Then followed another, more gradual, drop to 11–12*d.* in 1916. Since 1916 the rate, tho somewhat higher than in the earlier years, has shown no sign of a return to the pre-war level, but has fluctuated between 12*d.* and 14*d.* (25 per cent and 12½ per cent below par).

As with the other countries, explanation of the exchange movement is sought in the balance of international payments. We begin with the merchandise trade. The following table shows the exports and imports of Brazil for the period 1910–17, and strikes the balance:

EXPORTS AND IMPORTS OF BRAZIL 1910–17¹
(U. S. \$1,000)

Year	Exports	Imports	Balance
1910	303,000	230,000	\$+73,000
1911	321,000	253,000	+68,000
1912	362,246	307,865	+54,381
1913	313,628	326,026	– 12,397
1914	221,539	165,747	+55,792
1915	255,659	145,749	+109,910
1916	265,802	194,582	+71,310
1917	290,993	216,319	+74,674

The important fact to be gathered from the preceding table is that *both* imports and exports were at a lower level in the war years than in the pre-war period. The diminution of imports requires no comment. It is a characteristic of the trade of all Latin American coun-

¹ From the Brazilian annual commerce reports, *Estatística Comercial*.

tries during the war, the result of the conservation of tonnage and goods for war uses. The falling off in exports, however, is significant. Here again the Brazilian experience is strikingly different from that of the other leading South American republics. The war caused a marked increase of demand for Argentine wheat, meat, and wool, and for Chilean nitrate and copper; and since these products represent the bulk of the exports of those countries, their total exports expanded remarkably. Meantime, Brazilian exports were below the pre-war level. The following table compares the exports of Brazil, Argentina, and Chile for the period 1911-17:

EXPORTS OF BRAZIL, ARGENTINA, AND CHILE, 1911-17
(Absolute figures, in U. S. dollars; 000's omitted)

Year	Argentina	Chile	Brazil
1911	\$330,336	\$123,884	\$321,000
1912	484,109	139,878	362,246
1913	500,986	144,653	313,628
1914	389,022	109,381	221,539
1915	561,803	109,350	255,659
1916	552,945	184,676	265,802
1917	530,914	256,768	290,993

In the following table the exports of these three leading Latin American countries are reduced to relative numbers. In the case of each country the average of the pre-war years 1911-13 is taken as the base (100 per cent) and the index number for each year is computed:

EXPORTS OF BRAZIL, ARGENTINA, AND CHILE, 1911-17
(Index numbers)

Year	Argentina	Chile	Brazil
1911	75	91	97
1912	111	103	109
1913	114	107	95
1914	89	73	67
1915	128	73	77
1916	126	136	80
1917	121	189	88

The index numbers enable one to see more readily than do the absolute figures given in the preceding table just what occurred in the export trade of the three countries. Argentine exports were particularly large in 1915. Chilean exports in 1915 were below the pre-war level. In 1916, however, the growing demand for nitrate and copper manifested its effects, producing an astonishing increase (to far beyond the pre-war level) in Chilean exports of that year; in 1917 the expansion continued. Brazilian exports, meanwhile, were distinctly below the level of the pre-war period.

The reasons for this difference between the experience of Brazil and that of other countries are several. In the first place, it should be said that the decline in Brazilian exports was not a decline in the *quantity* exported. In fact, tonnage of exports in 1916 and 1917 considerably exceeded that of 1912 and 1913. What has happened in Brazil is that the *mean value* of Brazilian export tonnage has constantly decreased. In other words, while prices of exports in other South American countries were rising, export prices in Brazil were actually declining during the war. The mean value per ton of Brazilian exports was \$237 in 1913, \$179 in 1914, \$148.5 in 1915, and \$148 in 1916. These figures demonstrate the relatively high value of Brazilian produce to its weight in pre-war years, under normal circumstances, and the striking decline in value per ton during the war.

This question of export prices has, perhaps, a direct connection with the course of foreign exchange. An exporter of wheat in Buenos Aires, for example, in quoting a price to the foreign buyer, would base his quotation upon three factors, the price of wheat in the Buenos Aires market, the maritime freight rate, and the current rate of exchange. With the abnormally high

rate of exchange ruling during the war, the exporter having for sale a foreign bill of exchange received in payment of produce sold, was obliged to sell it at a ruinous loss, owing to the existing depreciation of foreign moneys in terms of the Argentine or Uruguayan peso. To protect himself against loss, the exporter had to raise the price of his goods to a figure sufficient to offset the difference on exchange. In Brazil, as we have seen, exchange was not above normal, but decidedly below it. The bearing of this fact on prices is apparent. Foreign moneys being at a premium, the exporter who had sold abroad Brazilian goods and received a foreign bill of exchange in payment therefor, could cash his bill at a premium. In consequence, he could afford to sell at a lower, rather than a higher, price than in former years.

This statement of the connection between exchange and price, however, is put forth merely as a suggestion of one factor, and probably a minor one, in the explanation of the different course of export prices in Argentina and Chile on the one hand, and Brazil on the other. It is a commonplace that in peace times South American exports, except for coffee and nitrate, constitute too small a proportion of the world stock to control the world price. Rather, South American export prices are dominated by the prices ruling in the principal markets to which the exports are sold. Much more was this the case during the war. Export prices, total value of exports, foreign exchange, rose in Argentina and Chile as the direct consequence of war demand for Chilean nitrate and Argentine meat, wheat, wool, and hides. It is at this point that one finds the explanation of the difference between the Brazilian experience and that of the other countries. The exports of Brazil did not expand for the reason that they were not the sort of prod-

ucts for which there was a war demand. At least, this is true of the pre-war Brazilian staple exports.

The bulk of the exports of Brazil has for years consisted of two products, coffee and rubber. For example, out of total exports of \$313,628,000¹ in 1913, rubber and coffee comprised \$248,579,000, or about four-fifths of the total. By far the most important single export is coffee, which in 1913 amounted to \$198,157,000, or over 63 per cent of the total exports. Coffee is not a war commodity. The Allied powers therefore restricted its import. Even more serious is the fact that the large demand from Central Europe, amounting normally to about 4,000,000 bags a year, was cut off. In consequence, the United States was the only unrestricted market for Brazilian coffee, taking about one-half the total exports. Added to these pronounced restrictions of the demand for coffee is the fact that the Brazilian supply during the war was somewhat above the pre-war normal. The result was that Brazil had on its hands an increasing stock of coffee which it could not hope to dispose of until after the war.

This situation became acute almost immediately upon the outbreak of war, and led in 1915 to the reestablishment of a valorization system, along somewhat different lines from the famous plan of 1907-08. The federal government by a law of 1915 authorized the issue of 350,000,000 paper milreis, of which a part was to be used for carrying out a new plan of coffee valorization. The paper money was lent by the federal government to the state of São Paulo, which has been conducting the valorization operations. The original plan was to prohibit the export of coffee above 6,000,000 bags a year; the 4,000,000 bags which in normal times went to Germany, Austria, etc., to be held in Brazil, the state of

¹ Figures are given in United States dollars.

São Paulo lending, in paper money, up to 60 per cent of a value to be fixed on a basis of past averages to coffee growers who deposited their coffee in warehouses; the warehouse receipts to be handed over by the state government to the federal government as collateral for the issue by the latter of the paper money. This loan feature was dropped, however, and instead the state of São Paulo undertook to purchase at an official price so much of the annual coffee crop as might appear sufficient to maintain prices, or, failing in that, so much as it might be able to purchase with the paper money funds supplied to it by the federal government under the laws above mentioned.

In 1918 the São Paulo government bought large quantities of coffee at the price of 4\$900¹ per 10 kilos (i.e., about \$1.24 for 22.4 lbs.). The ordinary market price, however, was lower, between 4\$600 and 4\$500. Interior shippers and planters demanded that their coffee be sold to the government, and the coffee Associação of Santos presented a memorial to the government requesting a further issue of 300,000,000 milreis of paper money for additional valorization purchases.

The statement on page 457 indicates the coffee position up to May, 1918. The table indicates that of a total crop of 17,000,000 bags, about 13½ million actually came to market; of this quantity somewhat more than 7 million bags were exported, leaving the enormous quantity of 5,939,291 bags of the 1917-18 crop, and 1,100,000 bags of the 1916-17 crop — a total of virtually 7,000,000 bags, or as much as the total 1917-18 exports — in storage in Brazil and unable to find an outlet. The state of São Paulo, it is seen, was itself holding almost 2,800,000 bags, or almost 40 per cent of the total amount in storage.

¹ I. e., 4 milreis, 900 reis.

THE COFFEE POSITION, 1917-18 CROP¹

	Bags
In hands of São Paulo government, April 30, 1918.	2,788,875
In hands of commissarios and exporters, inclusive of 600,000 bags bought by São Paulo government.	4,150,416
Shipped coastwise.	281,000
Exported up to April 25, 1918.	7,325,665
Total.	14,545,956
Less stock on June 30, 1917.	1,100,000
Net total.	13,445,956
To come down to complete estimated crop.	3,554,044
Total crop.	17,000,000

The fact is that the supply of Brazilian coffee was hopelessly in excess of the demand. The result was that in spite of the large purchases by the government, the price of coffee in Brazil went steadily downward. Meantime, as a result of rising freight and insurance rates (which are, moreover, additional causes of the diminution of exports) foreign coffee prices rose. The following table shows the price of Brazilian coffee in London and in Santos for the period 1911-18:

PRICE OF COFFEE, 1911-18¹

Date	LONDON Shillings cwt.	SANTOS Paper Milreis 10 kilos = 22.4 lbs.
Oct. 16, 1911	66s. 9d.	8\$600
March 26, 1911	62s. 3d.	7\$900
" 1913	52s. 9d.	6\$250
" 1914	41s. 3d.	4\$750
" 1915	43s.	5\$150
" 1916	44s. 6d.	4\$900
" 1917	53s. 6d.	5\$500
" 21, 1918	66s. 9d.	4\$100

¹ Data on the "coffee position" and on prices from Wileman's Brazilian Review for May and June, 1918.

By midsummer of 1918 the purchases of coffee by the state of São Paulo amounted to 4,500,000 bags. The congestion was further relieved by an arrangement made with the French government by which 2,000,000 were purchased on behalf of France. The 1918-19 crop, at first estimated at 10,500,000 to 12,000,000 bags, was considerably reduced by a severe frost in São Paulo on July 9, 1918. See Fielding Provost, "The Brazilian Coffee Situation," Pan American Magazine, September, 1918, pp. 225 et seq. On September 6, 1918 there were 6,351,000 bags of coffee on hand in Santos and 884,000 in Rio de Janeiro, as compared with 2,825,000 bags in both places combined on the same date in 1917. Bulletin of the Pan American Union, October, 1918, p. 604.

The different course of Brazilian and foreign prices is apparent. After the initial fall to 41s. 3d. in 1914 provoked by the liquidation of speculative accounts that followed the Balkan war, London quotations moved upward with the increasing charges for freight and insurance. The course of prices in Brazil was just the contrary. Since October, 1911, when owing to reckless speculation prices reached the maximum in both the Brazilian and the London market, prices in Brazil, with the exception of a slight reaction in 1915, due to extraordinary activity in the trade with Scandinavia and the United States, dropped continuously, until at 4\$100 per 10 kilos it is doubtful if they sufficed even to cover the cost of production.

The facts that have been presented — the restriction of markets, the decline of prices, the abnormal accumulation of stocks in Brazil — find their most convenient expression in the figures of coffee exports. The following table shows the exports of coffee for the years 1913–17. Both quantity and value figures are given:

EXPORTS OF COFFEE FROM BRAZIL, 1913–17

Year	Quantity (1,000 bags ¹)	Value (U. S. \$1,000)
1913.....	13,267	\$198,157
1914.....	11,270	131,220
1915.....	17,061	156,443
1916.....	13,039	138,296
1917.....	10,605	112,033

Except for the reaction in 1915, it is seen that the trend of coffee exports, both in quantity and in value, was pretty steadily downward. The increased quantity exports of 1915, almost 4,000,000 bags greater than in 1913, is noteworthy. But because of reduced prices, the value figures of the 1915 exports were more than \$40,-

¹ Bag = 132 lbs.

000,000 less than in 1913. After 1915 the decline in both categories is striking. The year 1917 was the low water mark. Quantity exported fell almost 6,500,000 bags below 1915, and the value fell over \$44,000,000 below the 1915 figures, and over \$86,000,000 below the 1913 figures, a decrease of 45 per cent. It ought to be said, too, that 1913 was by no means a normal year, exports of coffee being \$28,114,880 below the 1912 figure.

A close second to the falling-off in coffee was the decline in exports of rubber, the other major export. The following table gives the quantity and value of rubber exported in the years 1913-17.

EXPORTS OF RUBBER FROM BRAZIL, 1913-17

Year	Quantity (Million tons)	Value (U. S. \$1,000)
1913.....	36,232	43,223
1914.....	33,531	34,326
1915.....	35,165	34,214
1916.....	31,495	36,431
1917.....	33,980	36,435

Rubber exports show a decrease of 2,252,000 tons and \$6,788,000, or about 16 per cent. The table indicates, however, that the decline took place in 1914; in later years the trade slightly improved.

The discussion of coffee and rubber indicates sufficiently the reasons for the failure of the Brazilian export trade to expand during the war; and in consequence, explains why, while the trade balances of Argentina and Chile have been rising phenomenally, the Brazilian balance has undergone but little change. The table on the next page compares the trade balances of Brazil, Argentina, and Chile for the years 1910-17.

The difference between the Brazilian situation and that of Argentina and Chile is apparent at a glance. Except for the year 1913, a year of unusually large im-

COMPARISON OF THE TRADE BALANCES OF BRAZIL, ARGENTINA AND CHILE, 1910-17

(U. S. \$1,000)

Year	Brazil	Argentina	Chile
1910	\$+73,000	\$+20,125	\$+11,439
1911	+68,000	-40,539	-3,497
1912	+54,381	+92,194	+17,881
1913	-12,397	+59,977	+24,379
1914	+55,792	+74,726	+10,920
1915	+109,910	+278,789	+53,625
1916	+71,310	+199,630	+103,456
1917	+74,674	+169,849	+127,178

ports, the Brazilian balance was favorable. Except for the year 1915, however, the balance in favor of Brazil in the war years was about of the same size as in pre-war years. Meantime the balances in favor of Argentina and Chile show a large increase. Relating these facts to the course of foreign exchange, it is not surprising that in Argentina and Chile, by reason of the great excess of supply of exchange, representing the exports, over the demand for exchange, to pay for imports, exchange experienced a phenomenal rise; whereas in Brazil, where there was no such change in the trade balance, there was no such rise of exchange.

What in fact occurred, as we have seen, was a pronounced fall of exchange; and the balance of merchandise trade, by itself, does not provide an explanation of the fall. As in the case of Chile, there are but few data on the other items of the balance of payments; but for what are by far the most important items, foreign borrowings and interest payments, a fairly trustworthy computation can be made.

Financially, Brazil fared worse than any of the other South American republics during the war. The outbreak of war produced an acute situation, the reasons for which go back a considerable space into the pre-war period. Brazil had for long been accustomed to a large

inflow of foreign capital. The six year period 1908-13, in particular, witnessed a program of heavy borrowing, both by the federal and the state governments, and by private enterprise. The following figures show the amount of new foreign capital annually invested in Brazil during the period 1908-16:

AMOUNT OF NEW CAPITAL IN BRAZIL, 1908-16¹
(U. S. \$1,000)

1908.....	140,000	1913.....	202,727
1909.....	101,386	1914.....
1910.....	163,936	1915.....
1911.....	188,305	1916.....	5,500 ²
1912.....	123,773		

The easy acquisition of foreign capital led the governments and private individuals into extravagances — into unusually large military and naval expenditure, into railway and other public projects which could yield a return only after some years of waiting. According to official statements, the revenues of Brazil for the five years 1910-14 totaled 2,762,008 contos (paper), while expenditures amounted to 3,514,155 contos, leaving the enormous deficit of 752,147 contos, or \$238,123,000. During the first four years, 1910-13, the deficit was \$159,123,000, or an average of \$39,781,000 per year. In 1914 it was nearly double that sum. Owing to the war, the revenue decreased to 375,098 contos, while expenditures, tho considerably lower than in the preceding year, amounted to 636,781 contos, thus leaving a deficit of 261,683 contos, or \$78,902,000.

The outbreak of war did more than cut down government revenue. It shut off the inflow of foreign capital which was at the bottom of the extravagant expenditure. The sudden cessation of investment in 1914, moreover,

¹ Translation in the *Pan American Magazine*, November, 1918, pp. 16 et seq., of an official statement by Elysio de Carvalho.

² \$5,500,000 lent to the municipality of São Paulo by United States banks.

came after some rather trying experiences in 1913. Brazil was seriously affected by the stringency in foreign money markets which followed the outbreak of the Balkan War. The year 1913, moreover, witnessed a slump in coffee and rubber prices. The value of coffee and rubber exported in 1913 was nearly \$56,000,000 less, altho the exports of coffee were over a million bags larger, than in 1912. Total exports declined from over \$362,000,000 in 1912 to less than \$314,000,000 in 1913. At the same time imports increased from about \$308,000,000 to \$326,000,000. The result was that in that year the balance of trade was unfavorable by about \$12,000,000.

In consequence gold began to flow out of Brazil, and the exchange rate was threatened. In 1912 there was a net inflow of gold amounting to \$17,500,000. In 1913, on the other hand, there was a net export of gold of over \$23,000,000. Brazilian exchange would have fallen in 1913 from the high level of the 1910-12 period had it not been for the important service performed by the Conversion Office, which issued gold freely to maintain exchange, its gold holdings falling in consequence from 386.7 to 276 million milreis during 1913.¹

When the war broke, the federal government was negotiating for a loan in London. The failure of the negotiations made it impossible for the government to pay interest on its foreign obligations. In October, 1914, an agreement was made with the foreign bondholders, represented by the Rothschilds, for a funding loan of £15,000,000.¹ The interest on the foreign debt was paid in the bonds of this loan up to August, 1917, when interest payments were resumed. Amortization of the foreign debt was suspended for thirteen years (until 1927). The effect of the funding loan was to take

¹ South American Journal, January 18, 1919, p. 37.

the weight of the foreign interest payments off the exchange market, temporarily, thus preventing a fall of exchange much more serious than that which actually did occur.

As it was, exports of gold increased to the high figure of \$40,144,000 in 1914; and the stock of gold in the Conversion Office was reduced to 138.5 million milreis by the end of the year. In December, 1914, the President was authorized to suspend the redemption of notes until December, 1915, the suspension being subsequently extended. The government resorted to issues of paper money. The first issue, authorized by law of August 24, 1914, was for 250,000,000 milreis. A second issue, of 350,000,000 milreis, was authorized by law of August 28, 1915. By June 30, 1918, the total quantity of inconvertible paper in circulation was 1,534,252,000 milreis, representing an increase of 945,000,000 milreis since August 26, 1914.¹

In other words, throughout the war Brazil has been on an inconvertible paper money basis; and the foreign exchanges have been subject to all of the fluctuation and unsteadiness which is inherent in every inconvertible paper situation, and of which the most interesting instance today is Chile. Large emissions of paper, moreover, have precisely the same effect on the rate of exchange as does an unfavorable trade balance. They affect unfavorably the ratio between the domestic paper and foreign gold moneys, by increasing the supply of the former relatively to the demand for it, and thus cause its depreciation in terms of foreign gold. Here, then, is undoubtedly one of the causes of the present low rate of Brazilian exchange.

¹ South American Journal, January 18, 1919, p. 37. At the end of 1918, the quantity of paper in circulation was stated to be about 2,000,000,000 milreis. *Revista de Economia y Finanzas*, pp. 609, 610.

Another cause is contained in the borrowing program which we have reviewed. The heavy borrowings have given rise to an increasingly heavy interest charge. According to Sr. Elysio de Carvalho, whose figures of new annual borrowings were given above, p. 461, the total foreign capital invested in Brazil was in 1917, \$2,000,000,000.¹ Of this sum \$577,240,000 is the foreign debt of the federal government (December 31, 1917), and \$301,116,376, the foreign indebtedness of the individual states and municipalities (December 31, 1916); the remainder, or \$1,122,000,000, representing private investment. The annual interest charge on the federal foreign debt is about \$30,000,000, but owing to the funding agreement, which did not end until August, 1917, only \$11,993,506 was paid in 1917. Interest on all other foreign capital (\$1,423,000,000) at 5 per cent equals \$71,150,000; the total interest charge in 1917 was thus about \$83,144,000. When this sum is added to the imports (\$216,319,000), we have a total of outgoings from Brazil of about \$299,463,000, as against \$290,993,000 of exports. The favorable trade balance of \$74,674,000 (shown on p. 460) is thus converted into a deficit of \$8,470,000. Had the full interest charge on the federal foreign debt been paid, the balance would have been much more unfavorable.

To sum up the discussion of Brazilian exchange, the suspension of specie payments by the act of December, 1914, the large emissions of inconvertible paper money since that date, the sudden shutting-off of the large annual inflow of foreign capital by the outbreak of war, which brought upon Brazil the full burden of the interest charge — these factors, combined with the serious shrinkage of the exports of coffee and rubber and the

¹ Of the total amount \$1,750,000,000 is European. Of this \$705,000,000 is English, and \$600,000,000 French. *Pan American Magazine*, November, 1918, pp. 20 et seq.

consequent failure of the export trade to expand, as it has done in other countries, brought it about that whereas in the other countries exchange rose remarkably, in Brazil the level of exchange during the war was considerably below the level of pre-war years.

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